OCCUPATIONAL ANALYSES SERIES

Tilesetter

2004

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Occupational Analyses Series

Tilesetter

2004

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Human Resources
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The Canadian Council of Directors of Apprenticeship (CCDA) recognizes this Occupational Analysis as the national standard for the occupation of tilesetter.

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This analysis was prepared by the Human Resources Partnerships Directorate of HRSD. The overall planning and coordination of the development of this analysis was undertaken by staff members of HRSD's Policy and Apprenticeship Division.

LIST OF PUBLISHED OCCUPATIONAL ANALYSES *

TITLE	NOC**Code
Appliance Service Technician (1997)	7332
Aquaculture Technician (1977)	2221
Arts Administrator (1989)	0114
Automotive Painter (1995)	7322
Automotive Service Technician (1998)	7321
Automotive Technician - Automatic Transmission (1990)	7321
Automotive Technician - Electrical/Electronics (1992)	7321
Automotive Technician - Engine Repair and Fuel Systems (1989)	7321
Automotive Technician - Front-End (1989)	7321
Automotive Technician - Manual Transmission, Driveline and Brakes (1990)	7321
Aviation Machinist (1994)	7231
Baker (1997)	6252
Blaster (Surface) (1987)	7372
Boilermaker (2003)	7262
Bricklayer (2000)	7281
Cabinetmaker (2000)	7272
Carpenter (1998)	7271
Cement Finisher (1995)	7282
Construction Electrician (2003)	7241
Cook (2003)	6242
Electrical Rewind Mechanic (1999)	7333
Electronics Technician - Consumer Products (1997)	2242
Electronics Technician Vol. I (1986) (Video Equipment)	2242
Electronics Technician Vol. II (1986) (Audio Equipment)	2242

* **Red Seal analyses are indicated in bold**

** **National Occupational Classification**

Electronics Technician Vol. III (1986) (Computer Equipment)	2242
Electronics Technician Vol. IV (1986) (Office Equipment)	2242
Electronics Technician Vol. VI (1986) (Communication Equipment)	2242
Electronics Technician Vol. VII (1986) (Signaling Equipment)	2242
Electronics Technician Vol. VIII (1986) (Navigation Equipment)	2242
Electronics Technician Vol. IX (1986) (Video Game Equipment)	2242
Electronics Technician Vol. X (1987) (CADD Equipment)	2242
Electronics Technician Vol. XI (1987) (CAM Equipment)	2242
Electronics Technician Vol. XII (1987) (Robotics Equipment)	2242
Electronics Technician Vol. XIII (1987) (Biomedical and Laboratory Equipment)	2242
Electronics Technician Vol. XIV (1987) (Industrial Process-Control Equipment)	2243
Farm Equipment Mechanic (2000)	7312
Floorcovering Installer (1997)	7295
Glazier (1996)	7292
Hairstylist (1997)	6271
Heating (Gas and Oil) Servicer - Commercial and Industrial (1978)	7331
Heavy Duty Equipment Mechanic (1998)	7312
Industrial Electrician (2003)	7242
Industrial Instrument Mechanic (2000)	2243
Industrial Mechanic (Millwright) (1999)	7311
Insulator (Heat and Frost) (2000)	7293
Ironworker (Generalist) (1993)	7264
Lather (Interior Systems Mechanic) (2002)	7284

Logistics (1992)	0713
Machinist (1998)	7231
Major Electrical Appliance Repairer (1984)	7332
Mobile Crane Operator (1997)	7371
Motorcycle Mechanic (1995)	7334
Motor Vehicle Body Repairer (Metal and Paint) (1997)	7322
New Home Builder and Residential Renovation Contractor (1992)	0712
Oil Burner Mechanic (1997)	7331
Painter and Decorator (2000)	7294
Partsperson (1995)	1472
Plumber (2003)	7251
Power Engineer (1997)	7351
Powerline Technician (1996)	7244
Recreation Vehicle Mechanic (2000)	7383
Refrigeration and Air Conditioning Mechanic (1997)	7313
Roofer (1997)	7291
Sheet Metal Worker (1997)	7261
Sprinkler System Installer (2003)	7252
Steamfitter-Pipefitter (1996)	7252
Metal Fabricator (Fitter) (2003)	7263
Tilesetter (2004)	7283
Tool and Die Maker (1997)	7232
Transport Trailer Technician (2003)	7321
Truck and Transport Mechanic (2000)	7321
Welder (1994)	7265

REQUESTS FOR THESE PUBLICATIONS SHOULD BE FORWARDED TO:

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FOREWORD

The first National Conference on Apprenticeship in Trades and Industries, held in Ottawa in 1952, recommended that the federal government be requested to co-operate with provincial apprenticeship committees and officials in preparing analyses of a number of skilled occupations. To this end, Department of Human Resources and Skills Development sponsors a program, under the guidance of the Canadian Council of Directors of Apprenticeship (CCDA), to develop a series of occupational analyses.

The Occupational Analysis Program has the following objectives:

- to identify and group the tasks performed by skilled workers in particular occupations;

- to identify those tasks that are performed by skilled workers in every province and territory;

- to develop instruments for use in the preparation of interprovincial standards "Red Seal" examinations and curricula for training leading to the certification of skilled workers;

- to facilitate the mobility, in Canada, of trainees and skilled workers;

- to supply employers and employees, and their associations, industries, training institutions and governments with analyses of the tasks performed in particular occupations.

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GUIDE TO ANALYSIS

DEVELOPMENT OF ANALYSIS

A draft analysis is developed by a knowledgeable consultant who, with the assistance of a committee of industry experts in the field, identifies all the tasks performed in the occupation.

The draft is then assigned to occupational analysts at the Department of Human Resourcesand Skills Development for translation and then returned to the consultant for review to ensure conformity with the nationally approved format.

The consultant will then forward a copy of this analysis to provincial/territorial authorities for validation by specialists in the field. Their recommendations are assessed and incorporated into the final draft which also includes the identification of the common core tasks performed in the occupation.

The occupational analysis is published in both official languages.

STRUCTURE OF ANALYSIS

To facilitate understanding of the nature of the occupation, the work performed is divided into the following divisions:

A. **BLOCK** – is the largest division within the analysis and reflects a distinct operation relevant to the occupation.

B. **TASK** – is the distinct activity that, combined with others, makes up the logical and necessary steps the worker is required to perform to complete a specific assignment within a "BLOCK".

C. **SUB-TASK** – is the smallest division into which it is practical to subdivide any work activity and, combined with others, fully describes all duties constituting a "TASK".

Supporting Knowledge & Abilities

The elements of skill and knowledge that an individual must acquire to adequately perform the task are identified under this heading.

Trends

Any shifts or changes in technology that affect the block are identified under this heading.

Related Components

All components of a specified task being undertaken by the tilesetter are identified under this heading.

Tools and Equipment

All tools and equipment necessary for the tilesetter to complete a task are identified under this heading.

VALIDATION METHOD

At the request of the Canadian Council of Directors of Apprenticeship (CCDA), the Standardization Sub-committee developed a method for validating the Red Seal national occupational analyses.

A draft of the analysis is sent to all provinces/territories for validation. Each jurisdiction rates the sub-tasks and applies percentage ratings to blocks and tasks. This method for the validation of the national occupational analysis identifies common core tasks across Canada for a specific occupation. This feature facilitates the weighting of the Interprovincial Red Seal examinations.

DEFINITIONS

YES: the sub-task is performed by workers in the occupation in a specific jurisdiction.

NO: the sub-task is not performed by workers in the occupation in a specific jurisdiction.

BLOCK %: the average number of questions (items), derived from the collective decision made by workers within the occupation from all areas of Canada, that will be placed on an interprovincial examination to assess each block of the analysis.

TASK %: the average number of questions (items), derived from the collective decision made by workers within the occupation from all areas of Canada, that will be placed on an interprovincial examination to assess each task of the analysis.

NV: Not Validated by a province/territory.

ND: Not Designated in a province/territory.

PROVINCIAL/TERRITORIAL ABBREVIATIONS

NL:	Newfoundland and Labrador
NS:	Nova Scotia
PE:	Prince Edward Island
NB:	New Brunswick
QC:	Quebec
ON:	Ontario
MB:	Manitoba
SK:	Saskatchewan
AB:	Alberta
BC:	British Columbia
NT:	Northwest Territories
YK:	Yukon
NU:	Nunavut

COMMON CORE

The criteria for determining common core depend on the performance of sub-tasks. If 70% of the responding jurisdictions (excluding NVs and NDs) perform a sub-task, it shall be considered common core.

Interprovincial Red Seal examinations are based on the common core identified through this validation process. This process identifies what will be assessed through the interprovincial examination.

BLOCKS AND TASKS WEIGHTING (APPENDIX "C")

This appendix represents the block and task percentages as submitted by each jurisdiction.

Each jurisdiction, with the use of a provincial/territorial occupational advisory committee, validates the content, places percentages on blocks and tasks, and indicates whether or not the sub-tasks are performed by the skilled workers within the occupation. The results of this exercise are submitted to the consultant who then analyzes the data and develops this appendix which provides the individual jurisdictional validation results as well as the national averages of all responses.

PIE CHART (APPENDIX "D")

The graph depicts the national percentages assigned to blocks in the analysis.

SCOPE OF THE TILESETTER OCCUPATION

The title "tilesetter" defines a person who, because of his or her knowledge, training, and abilities, is capable of covering, repairing, and decorating exterior and interior walls, floors, swimming pools, saunas, and other surfaces using ceramic, mosaics, marble and quarry tile, slate, stone or granite slabs, or terrazzo.

Tilesetters read and interpret architectural drawings and material specifications to determine tile layout, finish, and installation requirements. They prepare surfaces for tiling by applying a variety of underbeds such as metal mesh, anchor bolts, cement beds, or scratch coats. They select, mix, apply, and spread mortar, cement, mastic, or other adhesives to the tile to be set or the surface to be tiled. They cut and fit tiles to a variety of surfaces, and finish tiles using grout. Tilesetters also lay and set mosaic tiles to create decorative wall, mural, and floor designs. Some tilesetters cut, polish, and install marble and granite and mix, lay, grind, and polish terrazzo surfaces.

Because tilesetting is a final step in the construction process, tilesetters generally work indoors in relatively comfortable conditions. However, some of the work is exterior and is therefore exposed to inclement weather. The work requires considerable bending, crawling, kneeling, and reaching. Installing some material may also involve heavy lifting. Hazards include exposure to dust, silica, epoxy fumes, and repetitive stress injury.

Tilesetters are required to have a good sense of layout and design, and often prearrange tiles on a dry floor to confirm a specific design. Tilesetting requires considerable planning, and tilesetters must be able to visualise the finished design as they work with the small components at close quarters. Tilesetters must be familiar with the material properties and installation requirements of ceramic, mosaic, marble, quarry tile, stone, and terrazzo. All tilesetters are required to be competent in the use of a variety of specialty hand and power saws, tile cutters, and grinding and polishing machines.

Some tilesetters may be employed by tile contractors, while others are self-employed. On small jobs, tilesetters may work alone with minimal supervision. They may also supervise an apprentice or helper. On large jobs, they may work under the direction of a supervisor.

Tilesetters interact and work co-operatively with the full spectrum of construction tradespeople, such as carpenters, bricklayers, painters, lathers, cabinetmakers, plumbers, and heating, ventilation and air-conditioning technicians. They are required to constantly adjust their schedule and work to accommodate the schedule of these other trades since their role is one of final finishing.

OCCUPATIONAL OBSERVATIONS

Like many construction occupations, the tilesetter occupation is suffering from an ageing workforce. Many practitioners are approaching retirement age, and the trade is attracting fewer entrants to replace them. Many contractors report serious shortages when trying to obtain qualified practitioners.

Training and retraining is becoming an issue within the occupation. Pre-apprentice training is rare in Canadian community colleges, and many entrants to the field do not register as apprentices.

Along with all construction trades there is a greater emphasis on safe working conditions and practices. Tilesetters are now more aware of the hazards of the material with which they work.

Unlike the majority of construction trades, the tilesetter trade has not experienced a significant impact from advances in technology. While the products used continue to be improved, the work itself is still dependant on the manual skills and the artistic flair of the practitioner.

SAFETY

Safe working procedures and conditions, accident prevention, and the preservation of health are of primary importance to industry in Canada. These responsibilities are shared and require the joint efforts of government, employers, and employees. It is imperative that all parties become aware of circumstances that may lead to injury or harm. Safe learning experiences and environments can be created by controlling the variables and behaviours that may contribute to accidents or injury.

It is generally recognized that safety-conscious attitudes and work practices contribute to a healthy, safe, and accident-free working environment.

It is imperative to apply and be familiar with the Occupational Health and Safety Act and Regulations. As well, it's essential to determine workplace hazards and take measures to protect oneself, co-workers, the public, and the environment.

As safety education is an integral part of training in all jurisdictions, personal safety practices are not recorded in this document. However, the technical safety aspects relating to each task and sub-task are included throughout this analysis.

ANALYSIS

BLOCK A

OCCUPATIONAL SKILLS

Trends: *Constant introduction of new power tools (e.g. optical tools, and tools for cutting, mixing, and grouting) is enabling greater automation within the occupation. The use of wireless communication technology along with personal digital organizers is on the increase in the occupation. There is also a greater awareness of safe working conditions, and the handling, use and disposal of hazardous material.*

Task 1 **Interprets occupational documentation.**

Related Components: Drawings, codes, specifications.

Tools and Equipment: Architectural scales, calculator.

Sub-task

1.01 **Interprets drawings and specifications.**

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

1.01.01 knowledge of architectural drawings, specifications and addenda

1.01.02 knowledge of specification divisions, symbols and legends

1.01.03 knowledge of metric and imperial measurements

1.01.04 ability to conceptualize finished product

1.01.05 ability to analyze drawings and find relevant information

1.01.06 ability to create freehand sketches complete with dimensions

Sub-task

1.02 Interprets codes, standards and regulations.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

1.02.01	knowledge of government standards and regulations such as the Occupational Health and Safety Act (OHSA) and the Workplace Hazardous Material Information System (WHMIS)
1.02.02	knowledge of federal, provincial and municipal building codes
1.02.03	knowledge of Terrazzo, Tile and Marble Association of Canada (TTMAC) standards
1.02.04	ability to apply codes, standards and regulations

Sub-task

1.03 Interprets material documentation.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

1.03.01	knowledge of hazardous material specifications (WHMIS)
1.03.02	knowledge of manufacturers' documents and specifications
1.03.03	knowledge of record keeping, filing and retrieval methods
1.03.04	ability to file and retrieve information
1.03.05	ability to follow manufacturers' instructions
1.03.06	ability to interpret Material Safety Data Sheets (MSDS)

Task 2 Organizes work.

Related Components: Materials list, dust barriers, temporary barriers, hoarding, safety regulations, filing systems, personal organizer, communication system, schedule, site drawings.

Tools and Equipment: Broom, shovel, garbage containers, hazardous waste containers, tents, covers, heaters.

Sub-task

2.01 Determines suitability of worksite.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

2.01.01 knowledge of environmental requirements of work to be conducted such as minimum temperature and humidity

2.01.02 knowledge of other trades' activities

2.01.03 knowledge of substrate suitability

2.01.04 knowledge of work schedule

2.01.05 ability to determine when site is ready for work

2.01.06 ability to assess on-site services

2.01.07 ability to communicate with general contractor

2.01.08 ability to take remedial action

2.01.09 ability to adjust work schedule

Sub-task

2.02 Prepares worksite.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

2.02.01 knowledge of light demolition techniques and waste removal

Supporting Knowledge & Abilities

2.02.02	knowledge of how work impacts on surrounding areas
2.02.03	knowledge of dust barriers, hoarding and temporary barrier requirements
2.02.04	knowledge of safety codes applicable to work site
2.02.05	knowledge of heating and covering requirements when working outdoors
2.02.06	ability to assess site readiness
2.02.07	ability to pre-clean work site
2.02.08	ability to apply safety codes applicable to work site
2.02.09	ability to identify and report site hazard
2.02.10	ability to install dust barriers, hoarding and temporary barriers
2.02.11	ability to install inclement weather protection such as tents, covers and heaters
2.02.12	ability to remove obstructions
2.02.13	ability to protect surrounding finishes

Sub-task

2.03 Estimates materials and supplies needed on-site.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

2.03.01	knowledge of required materials and supplies
2.03.02	knowledge of inventory control
2.03.03	knowledge of imperial and metric conversions

Supporting Knowledge & Abilities

2.03.04 ability to procure material

2.03.05 ability to estimate materials and supplies needed as job progresses

Sub-task

2.04 Organizes materials and supplies.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

2.04.01 knowledge of proper storage of materials and supplies on site to ensure security and ease of use

2.04.02 knowledge of the sequence in which materials are to be used

2.04.03 knowledge of methods for securing and protecting materials

2.04.04 ability to place materials on site

2.04.05 ability to protect and secure materials

Sub-task

2.05 Develops, maintains and adapts schedule.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

2.05.01 knowledge of sequence of work

2.05.02 knowledge of the requirements of other trades on site

2.05.03 knowledge of communication techniques

2.05.04 ability to estimate time to complete specific tasks

Supporting Knowledge & Abilities

2.05.05	ability to co-ordinate work with others
2.05.06	ability to communicate and co-operate with others

Task 3 Communicates in the workplace.

Related Components: None.

Tools and Equipment: Communication devices (fax, cellular phone, telephone, photocopier, computer, radio).

Sub-task

3.01 Communicates with other disciplines and co-workers.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

3.01.01	knowledge of job-related terminology
3.01.02	ability to actively listen
3.01.03	ability to address others' concerns
3.01.04	ability to write reports in the prescribed format

Sub-task

3.02 Communicates with clients.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

3.02.01	knowledge of job-related terminology
3.02.02	ability to actively listen
3.02.03	ability to translate technical terms into plain language

Supporting Knowledge & Abilities

3.02.04	ability to address client's concerns
3.02.05	ability to explain care and maintenance of product
3.02.06	ability to explain implications of work

Sub-task

3.03 Communicates with apprentices/helpers.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

3.03.01	knowledge of capability of apprentice
3.03.02	ability to teach, coach, or mentor others
3.03.03	ability to listen to and assist with problems
3.03.04	ability to supervise
3.03.05	ability to assess and record ongoing progress

Task 4 Uses and maintains tools and equipment.

Related Components: Lubricants.

Tools and Equipment: See Appendix "A".

Sub-task

4.01 Uses hand tools.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

4.01.01	knowledge of types and uses of hand tools
4.01.02	knowledge of hand tool safety

Supporting Knowledge & Abilities

4.01.03	knowledge of manufacturers' recommended uses, limitations and maintenance of hand tools
4.01.04	ability to select and use hand tools required for task
4.01.05	ability to identify damaged, worn or otherwise unsafe hand tools
4.01.06	ability to clean and store hand tools
4.01.07	ability to maintain hand tools

Sub-task

4.02 Uses power tools.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

4.02.01	knowledge of types and uses of air, electric and hydraulic power tools
4.02.02	knowledge of power tool components
4.02.03	knowledge of operating procedures for power tools
4.02.04	knowledge of power tool safety
4.02.05	knowledge of manufacturers' recommended uses, limitations, and maintenance of power tools
4.02.06	ability to select power tools required for task
4.02.07	ability to operate power tools
4.02.08	ability to identify damaged, worn or otherwise unsafe power tools
4.02.09	ability to clean and store power tools
4.02.10	ability to maintain power tools

Sub-task

4.03 Uses scaffolding and access equipment.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

4.03.01	knowledge of types and uses of scaffolding and access equipment
4.03.02	knowledge of components of scaffolding and access equipment
4.03.03	knowledge of operating procedures for scaffolding and access equipment
4.03.04	knowledge of scaffolding and access equipment safety
4.03.05	knowledge of manufacturers' recommended uses, limitations, and maintenance of scaffolding and access equipment
4.03.06	ability to select and use scaffolding and access equipment for task
4.03.07	ability to identify damaged, worn or otherwise unsafe scaffolding and access equipment
4.03.08	ability to position and erect scaffolding and access equipment
4.03.09	ability to secure ladders, staging and scaffolding
4.03.10	ability to dismantle, clean and store scaffolding and access equipment
4.03.11	ability to maintain scaffolding and access equipment

Sub-task

4.04 Uses rigging, hoisting and lifting equipment.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

Supporting Knowledge & Abilities

4.04.01	knowledge of types and uses of hoisting and lifting equipment
4.04.02	knowledge of types and uses of rigging equipment such as belts, ropes, cables and slings
4.04.03	knowledge of operating procedures and hand signals for hoisting and lifting equipment
4.04.04	knowledge of rigging procedures
4.04.05	knowledge of rigging, hoisting and lifting equipment safety
4.04.06	ability to select and operate hoisting and lifting equipment for the tasks
4.04.07	ability to identify damaged, worn or otherwise unsafe rigging, hoisting and lifting equipment
4.04.08	ability to position hoisting and lifting equipment
4.04.09	ability to connect rigging equipment
4.04.10	ability to clean and store rigging, hoisting and lifting equipment
4.04.11	ability to maintain rigging, hoisting and lifting equipment
4.04.12	ability to construct and use ramps

Sub-task

4.05 Uses personal protection equipment.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

4.05.01	knowledge of types and uses of personal protection equipment
4.05.02	knowledge of components of personal protection equipment
4.05.03	knowledge of personal protection equipment requirements of the OHSA
4.05.04	knowledge of manufacturers' recommended uses, limitations and maintenance of personal protection equipment
4.05.05	ability to select and use personal protection equipment for conditions encountered
4.05.06	ability to use harnesses, safety belts and lines
4.05.07	ability to identify damaged, worn or otherwise unsafe personal protection equipment
4.05.08	ability to clean and store personal protection equipment
4.05.09	ability to maintain personal protection equipment

Sub-task

4.06 Uses level measuring equipment.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

4.06.01	knowledge of types and uses of level measuring devices such as water, hand, laser and builder's levels

Supporting Knowledge & Abilities

4.06.02	knowledge of manufacturers' recommended uses, limitations and maintenance of level measuring equipment
4.06.03	ability to select level measuring equipment for task
4.06.04	ability to clean and store level measuring equipment
4.06.05	ability to maintain measuring equipment

BLOCK B

SUBSTRATE PREPARATION

Trends: *New materials for substrates are being developed and introduced into the occupation. New technology for the testing of substrate integrity is being introduced into the occupation along with new power tools for the preparation of substrate surfaces.*

Task 5 Removes existing finishes.

Related Components: None.

Tools and Equipment: Hand tools, power tools, safety equipment, dust barriers, disposal containers.

Sub-task

5.01 Removes floor covering. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

5.01.01	knowledge of when existing material should be removed

Supporting Knowledge & Abilities

5.01.02	knowledge of properties of material to be removed
5.01.03	knowledge of health and safety issues
5.01.04	ability to select and use removal equipment
5.01.05	ability to dispose of removed material

Sub-task

5.02 Removes wall coverings.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

5.02.01	knowledge of when existing material should be removed
5.02.02	knowledge of properties of material to be removed
5.02.03	knowledge of health and safety issues
5.02.04	ability to select and use removal equipment
5.02.05	ability to dispose of removed material

Sub-task

5.03 Removes non-compatible materials.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

5.03.01	knowledge of types of substrate contaminates
5.03.02	knowledge of how to remove substrate contaminates
5.03.03	ability to identify substrate contaminants
5.03.04	ability to remove substrate contaminants
5.03.05	ability to dispose of substrate contaminants

Sub-task

5.04 Cleans surfaces.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

5.04.01	knowledge of what constitutes a surface-ready substrate
5.04.02	ability to provide surface-ready substrate

Task 6 Determines suitability of substrate.

Related Components: None.

Tools and Equipment: Common tools, measuring and layout equipment, safety equipment.

Sub-task

6.01 Determines substrate integrity.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

6.01.01	knowledge of types of substrate
6.01.02	knowledge of what constitutes a sound substrate
6.01.03	knowledge of TTMAC specifications
6.01.04	ability to conform the substrate to TTMAC specifications
6.01.05	ability to identify substrate problems such as moisture, rot and cracks

Sub-task

6.02 Determines drainage requirements.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

6.02.01 knowledge of slope requirements specific to a given job

6.02.02 knowledge of how to conform to slope requirements

6.02.03 ability to conform to drainage requirements

6.02.04 ability to provide alternative drainage that still meets requirements

Sub-task

6.03 Determines surface level and plumb.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

6.03.01 knowledge of level and plumb measuring equipment

6.03.02 knowledge of finished floor elevation

6.03.03 knowledge of surrounding floor elevations

6.03.04 ability to establish elevations of the finished floor

6.03.05 ability to determine plumb irregularities

Task 7 Prepares surface.

Related Components: Plywood (exterior grade), Cementitious Backer Unit (CBU), scratch coat (parging coat), mortar bed (interior, exterior, underbed, dry pack), membrane (waterproof, cloth, soundproof, crack isolation), floating floor, epoxy bonding agents, in-floor heating mats, patching compound.

Tools and Equipment: Common tools, measuring and layout equipment, power tools.

Sub-task

7.01 Repairs substrates. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

7.01.01 knowledge of properties of substrate

7.01.02 knowledge of substrate repair methods

7.01.03 ability to identify substrate defects

7.01.04 ability to patch drywall

7.01.05 ability to patch Cementitious Backer Unit

7.01.06 ability to repair plywood

7.01.07 ability to patch cement floors

Sub-task

7.02 Installs membranes. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

7.02.01 knowledge of types of membranes such as waterproof and crack isolating

7.02.02 knowledge of membrane installation techniques

7.02.03 ability to select membranes

7.02.04 ability to brush or roll on waterproof membranes

Supporting Knowledge & Abilities

7.02.05 ability to affix membrane material

7.02.06 ability to apply crack isolating membranes

Sub-task

7.03 Installs reinforcement mesh. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

7.03.01 knowledge of types of reinforcement mesh

7.03.02 knowledge of mesh applications

7.03.03 knowledge of mesh installation procedures

7.03.04 ability to select mesh

7.03.05 ability to cut mesh

Sub-task

7.04 Installs mortar beds. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

7.04.01 knowledge of mortar mixing ratios

7.04.02 knowledge of types of mortar beds

7.04.03 knowledge of finished elevations

7.04.04 ability to mix mortar

7.04.05 ability to select mortar bed

7.04.06 ability to screed and float underbeds to floors and walls

Sub-task

7.05 Installs underlayments. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

7.05.01 knowledge of types of underlayments

7.05.02 knowledge of underlay installation methods

7.05.03 ability to select underlays

7.05.04 ability to cut and fit underlays

7.05.05 ability to determine required use of membranes

Sub-task

7.06 Parges surfaces. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

7.06.01 knowledge of mortar mixes

7.06.02 knowledge of bond coats

7.06.03 knowledge of manufacturers' mixing ratios

7.06.04 ability to mix mortar

7.06.05 ability to select bond coat

7.06.06 ability to apply bond coat

Sub-task

7.07 Installs sound attenuation products. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

7.07.01 knowledge of sound attenuation products

Supporting Knowledge & Abilities

7.07.02	knowledge of appropriateness of sound attenuation product
7.07.03	knowledge of manufacturers' installation procedures
7.07.04	ability to select sound attenuation products

Sub-task

7.08 Places in-floor heating.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

Supporting Knowledge & Abilities

7.08.01	knowledge of in-floor heating products
7.08.02	knowledge of appropriateness of in-floor heating products
7.08.03	knowledge of limitations and trade restrictions related to electrical installations
7.08.04	knowledge of manufacturers' in-floor heating placement procedures
7.08.05	ability to set heating mats in cement-adhesive or mortar beds

BLOCK C

LAYOUTS

Trends: *The development and use of new optical equipment is revolutionizing the process of laying grid lines and squaring the work area. New divider materials are being developed and introduced into the occupation.*

Task 8 **Squares area.**

Related Components: Site drawings, specifications.

Tools and Equipment: Measuring and layout equipment.

Sub-task

8.01 **Determines site measurements.**

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

8.01.01 knowledge of metric and imperial measurements

8.01.02 knowledge of the procedure to square the area

8.01.03 knowledge of geometric shapes

8.01.04 ability to perform dimensional calculations

Sub-task

8.02 **Determines starting point.**

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

8.02.01 knowledge of basic layout principles and procedures

8.02.02 knowledge of project specifications and TTMAC standards

Supporting Knowledge & Abilities

8.02.03 ability to visualize finished product

8.02.04 ability to interpret drawings

8.02.05 ability to establish bench marks

Sub-task

8.03 Determines rise and run of stairs.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

8.03.01 knowledge of riser and tread standards

8.03.02 knowledge of optimum height and depth of risers and treads

8.03.03 ability to measure height and depth of risers and threads

8.03.04 ability to divide a staircase equally

Task 9 Lays out grid lines.

Related Components: None.

Tools and Equipment: Measuring and layout equipment, chalk line.

Sub-task

9.01 Determines tile layout for best visual effect.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

9.01.01 knowledge of procedures for squaring area

9.01.02 ability to visualize finished product

Supporting Knowledge & Abilities

9.01.03 ability to determine grout width

9.01.04 ability to shift grid lines for optimum effect

Sub-task

9.02 Establishes pattern locations. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

9.02.01 knowledge of design drawings and specifications

9.02.02 knowledge of construction geometry

9.02.03 ability to interpret drawings

9.02.04 ability to place dry layout

Task 10 Installs divider strips.

Related Components: L strips, T strips, divider strips, base divider strips, base cap strips, zinc, brass, plastic, transition strips, movement strips.

Tools and Equipment: Common tools, power tools, measuring and layout equipment.

Sub-task

10.01 Installs base strips. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

10.01.01 knowledge of functions and purposes of base strips

10.01.02 knowledge of base strip materials such as brass, zinc and plastic

10.01.03 knowledge of base strip installation procedures

Supporting Knowledge & Abilities

10.01.04	ability to select strip according to thickness of material being used
10.01.05	ability to cut, mitre and bend strips
10.01.06	ability to mount base strips

Sub-task

10.02 Installs floor strips.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

10.02.01	knowledge of functions and purposes of floor strips
10.02.02	knowledge of floor strip materials such as brass, zinc and plastic
10.02.03	knowledge of anti-slip strips
10.02.04	knowledge of floor strip installation procedures
10.02.05	ability to select strip according to thickness of material being used
10.02.06	ability to cut, mitre and bend strips
10.02.07	ability to mount floor strips

BLOCK D

MATERIAL PREPARATION

Trends: *New cutting technology such as water-jet and laser cutters are being introduced into the occupation. Pre-mixed compounds and automated mixers for setting compounds are being used more within the occupation.*

Task 11 Inspects materials.

Related Components: Ceramic tiles, quarry tiles, porcelain tiles, glass tiles, stone tiles, stone slabs, terrazzo chips, terrazzo strips, marble, limestone, slate, granite, sandstone, bookmatch, terra cotta, agglomerate.

Tools and Equipment: Callipers, tape measure.

Sub-task

11.01 Confirms tile consistencies. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

11.01.01 knowledge of calibre variations

11.01.02 knowledge of shading variations

11.01.03 knowledge of gauge variations

11.01.04 ability to distinguish colour variation

11.01.05 ability to check calibre and gauge

11.01.06 ability to identify dye lots

11.01.07 ability to mix boxes of tiles

11.01.08 ability to identify vein directions

Sub-task

11.02 Confirms natural stone consistencies.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

11.02.01	knowledge of calibre variations
11.02.02	knowledge of shading variations
11.02.03	knowledge of gauge variations
11.02.04	knowledge of natural stone properties
11.02.05	knowledge of different sizes of terrazzo chips
11.02.06	ability to distinguish colour variations
11.02.07	ability to distinguish thickness variations

Sub-task

11.03 Checks for damage.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

11.03.01	knowledge of product defects such as chips, hairline cracks, damaged corners, and surface defects
11.03.02	knowledge of surface finishes
11.03.03	ability to identify defects in materials
11.03.04	ability to correct defects or replace inappropriate material

Task 12 Cuts and pre-finishes material.

Related Components: Tiles (ceramic quarry, porcelain, glass, stone); stone slabs (marble, limestone, slate, granite, sandstone, terra cotta, agglomerate).

Tools and Equipment: Common tools, measuring and layout equipment, water saw, tile cutter, hole drill, power saw.

Sub-task

12.01 Cuts tile.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

12.01.01 knowledge of material properties

12.01.02 knowledge of accurate measurements and marking

12.01.03 knowledge of tile cutting procedures

12.01.04 ability to produce a template

12.01.05 ability to mark tile

Sub-task

12.02 Prepares stone slabs for cutting.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

12.02.01 knowledge of material properties

12.02.02 knowledge of pre-cut stone slabs

12.02.03 knowledge of identifying specifications

12.02.04 ability to prepare a template

12.02.05 ability to sort material

12.02.06 ability to identify order of installation

Supporting Knowledge & Abilities

12.02.07 ability to mark finished edges

12.02.08 ability to establish cut list

Sub-task

12.03 Cuts and shapes stone slabs. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

12.03.01 knowledge of material properties

12.03.02 knowledge of accurate measurements and marking

12.03.03 knowledge of cutting and drilling tools

12.03.04 ability to mark stone slabs

12.03.05 ability to select blades and drills

12.03.06 ability to drill or cut anchoring holes or slots

12.03.07 ability to shape stone slabs

12.03.08 ability to cut stone slabs

Sub-task

12.04 Polishes stone slabs. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

12.04.01 knowledge of material properties

12.04.02 knowledge of grinding stones and pads

12.04.03 knowledge of polishing materials

12.04.04 ability to select grinding stones or pads

12.04.05 ability to achieve uniform finish

Task 13 Mixes setting materials.

Related Components: Polymer modified thinset mortar, latex additives, epoxies, fast-setting mortar, medium bed mortar, mastics, urethane setting adhesive, plaster of Paris, silicone.

Tools and Equipment: Common tools, safety equipment.

Sub-task

13.01 Mixes epoxies. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

13.01.01 knowledge of types of epoxies

13.01.02 knowledge of epoxy specifications

13.01.03 knowledge of manufacturers' mixing ratios

13.01.04 knowledge of the hazards of epoxy

13.01.05 knowledge of WHMIS

13.01.06 knowledge of material properties

13.01.07 ability to follow manufacturers' specifications

13.01.08 ability to differentiate compounds for mixing epoxies

13.01.09 ability to measure quantities and ratios

13.01.10 ability to estimate required quantities

Sub-task

13.02 Mixes thinset mortars. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

13.02.01 knowledge of types of thinset mortars

13.02.02 knowledge of thinset mortar specifications

Supporting Knowledge & Abilities

13.02.03	knowledge of manufacturers' mixing ratios
13.02.04	knowledge of consistencies of thinset mortars
13.02.05	knowledge of additives
13.02.06	ability to blend latex products
13.02.07	ability to follow manufacturers' specifications
13.02.08	ability to adjust quantities for desired consistency
13.02.09	ability to measure quantities and ratios
13.02.10	ability to estimate required quantities

Sub-task

13.03 Mixes mortar beds.

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

Supporting Knowledge & Abilities

13.03.01	knowledge of types of mortar beds
13.03.02	knowledge of types of sand
13.03.03	knowledge of manufacturers' mixing ratios
13.03.04	ability to determine consistency of mortar bed
13.03.05	ability to adjust quantities for desired consistency
13.03.06	ability to measure quantities and ratios
13.03.07	ability to estimate required quantities

Sub-task

13.04 Mixes grouting materials. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

13.04.01 knowledge of types of grout

13.04.02 knowledge of grout's properties

13.04.03 knowledge of manufacturers' mixing ratios

13.04.04 ability to adjust quantities for desired consistency

13.04.05 ability to measure quantities and ratios

13.04.06 ability to estimate required quantities

Task 14 Mixes terrazzo.

Related Components: Aggregate (marble, graphite, glass, plastic), terrazzo (epoxy, polyacrylate, Portland cement), pigments.

Tools and Equipment: Mixer, shovel, broom, hose, measuring cup.

Sub-task

14.01 Mixes terrazzo aggregate. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

14.01.01 knowledge of sizes of terrazzo aggregate

14.01.02 knowledge of types of aggregate

14.01.03 knowledge of mixing ratios

14.01.04 ability to measure quantities and ratios

14.01.05 ability to mix aggregate to achieve uniformity

14.01.06 ability to estimate required quantities

Sub-task

14.02 Mixes Portland cement terrazzo.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

14.02.01	knowledge of Portland cement terrazzo
14.02.02	knowledge of manufacturers' mixing specifications
14.02.03	knowledge of mixing ratios
14.02.04	knowledge of sequence of mixing additives
14.02.05	ability to measure quantities and ratios
14.02.06	ability to estimate required quantities

Sub-task

14.03 Mixes epoxy terrazzo.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

14.03.01	knowledge of types of epoxy terrazzo
14.03.02	knowledge of manufacturers' mixing specifications
14.03.03	knowledge of safety procedures
14.03.04	knowledge of mixing ratios
14.03.05	ability to add components in proper sequence
14.03.06	ability to measure quantity and ratios
14.03.07	ability to estimate required quantities

BLOCK E

MATERIAL SETTING

Trends: *New compound/polymer technology is being introduced into the trade on an ongoing basis. Tiles are increasing in size, as are the tools for handling and placing them. Advancements in anchoring technology are being introduced into the occupation.*

Task 15 Installs tiles.

Related Components: Tiles: ceramic, porcelain, quarry, terra cotta, paver, glass mosaic, mosaic, slate, marble, agglomerate, terrazzo, granite, quartzite, limestone.

Tools and Equipment: Common tools, measuring and levelling equipment, power tools.

Sub-task

15.01 Applies setting material. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

15.01.01 knowledge of setting material products

15.01.02 knowledge of setting material application techniques

15.01.03 knowledge of environmental requirements such as temperature and humidity

15.01.04 ability to apply trowel setting material

Sub-task

15.02 Sets tiles. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

15.02.01 knowledge of types of tiles

Supporting Knowledge & Abilities

15.02.02 knowledge of tile installation procedures and standards

15.02.03 ability to place tile

15.02.04 ability to ensure bonding

15.02.05 ability to adjust and level tiles

Sub-task

15.03 Installs ceramic accessories. **Supporting Knowledge & Abilitics**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

15.03.01 knowledge of types of ceramic accessories such as soap dishes and towel bars

15.03.02 knowledge of product limitations

15.03.03 knowledge of accessory installation procedures

15.03.04 knowledge of manufacturers' recommended installation procedures

15.03.05 ability to place accessories for convenience

15.03.06 ability to secure accessories

Sub-task

15.04 Installs expansion and control joints. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

15.04.01 knowledge of joint specifications

15.04.02 knowledge types of joints

15.04.03 knowledge of purposes of joints

Supporting Knowledge & Abilities

15.04.04 knowledge of joint installation procedures

15.04.05 ability to place expansion and control joints

Sub-task

15.05 Installs tile edging.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

15.05.01 knowledge of edging products

15.05.02 knowledge of setting material

15.05.03 knowledge of edging installation techniques

15.05.04 ability to cut product

15.05.05 ability to place product

15.05.06 ability to apply setting material

Sub-task

15.06 Installs thresholds.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

15.06.01 knowledge of threshold products

15.06.02 knowledge of threshold installation procedures

15.06.03 knowledge of setting material

15.06.04 knowledge of clearances for doors

15.06.05 ability to cut thresholds

15.06.06 ability to level thresholds

15.06.07 ability to set thresholds

Task 16 Installs stone slabs.

Related Components: Slabs (slate, marble, granite, quartzite, limestone, agglomerate).

Tools and Equipment: Common tools, measuring and layout equipment, mini-grinder, angle grinder, wood wedges, access equipment.

Sub-task

16.01 Installs anchors.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	no	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

16.01.01 knowledge of drawings and specifications

16.01.02 knowledge of building codes applicable to installation of stone slabs

16.01.03 knowledge of anchoring products

16.01.04 knowledge of anchoring installation procedures

16.01.05 ability to drill through substrates

16.01.06 ability to follow installation procedures

Sub-task

16.02 Applies stone slab setting material.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	no	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

16.02.01 knowledge of types of setting materials

16.02.02 knowledge of setting material application procedures

16.02.03 knowledge of environmental requirements such as temperature and humidity

16.02.04 ability to spread setting material

Sub-task

16.03 Mounts stone slabs. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

16.03.01	knowledge of anchoring techniques
16.03.02	knowledge of building codes applicable to installation of stone slabs
16.03.03	knowledge of safe hoisting and lifting techniques
16.03.04	knowledge of slab installation procedures
16.03.05	ability to hoist slab
16.03.06	ability to anchor slab
16.03.07	ability to match veining
16.03.08	ability to level and plumb stone slabs

Sub-task

16.04 Sets stone slabs. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

16.04.01	knowledge of environmental requirements such as temperature and humidity
16.04.02	knowledge of slab installation techniques
16.04.03	knowledge of hoisting techniques
16.04.04	knowledge of slab levelling techniques
16.04.05	ability to match veining
16.04.06	ability to place slabs
16.04.07	ability to ensure bonding of slabs
16.04.08	ability to level slabs

Task 17 Pours terrazzo mixture.

Related Components: Aggregate (marble, graphite, glass, plastic), terrazzo (epoxy, polyacrylate, Portland cement), pigments.

Tools and Equipment: Common tools, mixer, shovel, rollers, trowels, broom, wheelbarrow, gloves (rubber and leather), shop vacuum, ventilation equipment.

Sub-task

17.01 Applies bond coat. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

17.01.01	knowledge of terrazzo specifications
17.01.02	knowledge of bonding agents such as epoxy and slurry bond coating
17.01.03	knowledge of bond coat application procedures
17.01.04	knowledge of setting times
17.01.05	ability to brush or roll on bonding coat

Sub-task

17.02 Trowels in terrazzo mixture. **Supporting Knowledge & Abilities**

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

17.02.01	knowledge of trowelling techniques
17.02.02	knowledge of types of terrazzo
17.02.03	knowledge of material properties
17.02.04	knowledge of setting times
17.02.05	knowledge of environmental requirements such as temperature and humidity
17.02.06	ability to organize pours by colour

Supporting Knowledge & Abilities

17.02.07 ability to maintain consistency

17.02.08 ability to pour terrazzo to specific height

Sub-task

17.03 Compacts terrazzo.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

17.03.01 knowledge of types of terrazzo chips

17.03.02 knowledge of size of chips

17.03.03 knowledge of setting times

17.03.04 knowledge of environmental requirements such as temperature and humidity

17.03.05 ability to sprinkle uniformly

17.03.06 ability to roll uniformly

17.03.07 ability to evaluate degree of compaction

Sub-task

17.04 Works surface.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

17.04.01 knowledge of trowelling techniques

17.04.02 knowledge of types of materials used

17.04.03 knowledge of setting times

17.04.04 ability to smooth surface

17.04.05 ability to fill holes

17.04.06 ability to ensure uniform thickness

BLOCK F

FINISHING

Trends: *More advanced automated finishing machines such as dry-diamond grinders are being introduced into the occupation. Improved solvents, sealants, cleaners, and grouts are being introduced into the occupation.*

Task 18 Finishes installed product.

Related Components: Grout and additives (sanded, non-sanded, epoxy, hydraulic), sealers, cleaning agents.

Tools and Equipment: Buckets, grout float, margin trowel, rubber gloves, sponges, masking tape, plastic sheets, rags, caulking gun, sealer applicator rollers, pan, silicone, mop, pail, shop vacuum.

Sub-task

18.01 Floats grout.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

18.01.01 knowledge of float types

18.01.02 knowledge of grouting material

18.01.03 knowledge of grout floating procedures

18.01.04 knowledge of setting times

18.01.05 ability to fill joints

18.01.06 ability to evaluate fullness of joint

Sub-task

18.02 Washes grout.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

18.02.01 knowledge of grout types

Supporting Knowledge & Abilities

18.02.02	knowledge of surface absorption rates
18.02.03	knowledge of sponge types
18.02.04	ability to contour grout joints
18.02.05	ability to remove excess grout from tile surface

Sub-task

18.03 Polishes tiles.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

18.03.01	knowledge of grout types
18.03.02	knowledge of tile finishes
18.03.03	knowledge of cleaning compounds
18.03.04	knowledge of surrounding finishes
18.03.05	ability to remove grout haze

Sub-task

18.04 Caulks joints.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

18.04.01	knowledge of types of caulking materials
18.04.02	knowledge of caulking application procedures
18.04.03	ability to select caulking
18.04.04	ability to smooth caulking
18.04.05	ability to clean joints

Sub-task

18.05 Seals grout.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

18.05.01	knowledge of types of grout
18.05.02	knowledge of types of sealers
18.05.03	knowledge of sealant application procedures
18.05.04	knowledge of how to determine moisture content
18.05.05	knowledge of environmental requirements such as temperature and humidity
18.05.06	ability to apply sealers

Task 19 Finishes terrazzo.

Related Components: Grout and additives (non-sanded, epoxy, hydraulic), sealers, silicone, diamond, cement, marble dust, pigments, cleaning agents.

Tools and Equipment: Grinders, grinding stones, carborundum and diamond abrasives, floor squeegees, rags, scrubbing pads, mops, pail, shop vacuum.

Sub-task

19.01 Grinds terrazzo.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

19.01.01	knowledge of types of terrazzo
19.01.02	knowledge of terrazzo grinding procedures
19.01.03	knowledge of stone grit
19.01.04	knowledge of grinding sequence

Supporting Knowledge & Abilities

19.01.05 ability to grind uniformly

19.01.06 ability to apply grinding sequence

Sub-task

19.02 Grouts terrazzo.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

19.02.01 knowledge of types of binders

19.02.02 knowledge of types of pigments

19.02.03 knowledge of mixing ratios

19.02.04 knowledge of grout application procedures

19.02.05 ability to spread grout

Sub-task

19.03 Seals terrazzo.

Supporting Knowledge & Abilities

NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU
yes	yes	yes	yes	yes	yes	ND	yes	yes	NV	ND	ND	ND

19.03.01 knowledge of types of terrazzo

19.03.02 knowledge of types of sealers

19.03.03 knowledge of sealant application procedures

19.03.04 knowledge of manufacturers' specifications

19.03.05 ability to apply sealer

APPENDICES

TOOLS AND EQUIPMENT

Common Tools

broom
bucket
caulking gun
chalk line
chipping hammer
chisels
claw hammer
cove base trowel
extension cords
finishing trowel
floor scraper
grinding stone
grout float
grout scrapers
hack saw
hand brush
hawk
heavy gauge trowel
lights
magnesium float
mallet
margin trowels
marking instruments
masking tape
mesh cutters
mortar board
mortar holder
notch trowel
plastic sheets
pliers
point trowel
power bar
pry bar
putty knife
rags
rubber hammer
screwdrivers
shovel
socket set
sponges
straight edge
suction cups
tile cutters
tile nippers
tin snips
utility knife
vice grips
wheelbarrow
wonder bar
wood float

Measuring and Layout Equipment

builders level
4' and 2' levels
laser leveller
laser square
plumb line
squares
straight edges
tape measure
water levels

Safety Equipment

caution tape
coveralls (fire retardant)
dust collectors
dust masks
ear plugs and muffs
exhaust fans
eye wash facilities
face shields
fall arresters
fire extinguishers
first aid kit/equipment
full body harness
hard hat
knee pads
leather gloves
life line
lock-out kit
portable lighting
respirators
rope grabs
rubber gloves
safety glasses/goggles
safety vest
saw guards
signage
steel toe boots
vapour masks
warning signs

Scaffolding and Access Equipment

aluminium planks
boom lifts
ladder jacks
ladders
mechanical scaffolds
ramps
rolling scaffolds
sawhorses
scissor-lift
stationary scaffolds
stepladders

Power Tools and Equipment

angle grinder
base grinder
buffer
drum cement mixer
electric winch
floor grinding machine
floor polisher
floor scrubber
hammer drill
hole drills
hot glue gun
jack hammer
mini-grinder
mixing drill
power chisel
power drill
power grout washing machine
power grouting machine
power scarifier
power undercut saw
router
stand-up screw gun
wet and dry vacuum
wet saw

Speciality Tools and Equipment

air compressor
cement mixer
communication devices
gas powered heater
generator
hammer drill
jigs, racks
sealer applicator
stone grinder
stone polisher
terrazzo roller
transit (levelling)
wet saws
wire rack

GLOSSARY

accessories	ceramic fixtures such as towel bars, paper and soap holders, etc.
bond coat	material used between the back of the tile and the prepared surface
Cementitious Backer Unit (CBU)	a nailable, screwable backerboard or underlayment panel composed of Portland cement, aggregates and reinforcement
divider strips	zinc, brass or plastic strips used to control expansion or contraction of the underbed and topping, or to divide different colour panels or patterns
epoxy	a two-component synthetic thermosetting resinous material
mortar bed	mixture of cement and sand placed over rough floor to provide a level base for finishing material
MSDS	Material Safety Data Sheets
OHSA	Occupational Health and Safety Act
stone slabs	any natural occurring architectural material such as marble, slate, limestone, granite, quarry tiles or quartzite
substrate	the underlying surface such as concrete, wood, concrete board, upon which finishing material is placed
terrazzo	a form of mosaic flooring made by embedding pieces of aggregate chips in matrix
TTMAC	Tile, Terrazzo and Marble Association of Canada
WHMIS	Workplace Hazardous Material Information System

BLOCKS AND TASKS WEIGHTING

BLOCK A OCCUPATIONAL SKILLS

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	National Average
%	15	30	10	20	5	10	ND	10	10	NV	ND	ND	ND	14%

Task 1 Interprets occupational documentation.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	25	35	20	35	20	15	ND	40	20	NV	ND	ND	ND	26%

Task 2 Organizes work.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	25	25	30	15	20	35	ND	30	20	NV	ND	ND	ND	25%

Task 3 Communicates in the workplace.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	18	15	30	25	10	15	ND	15	10	NV	ND	ND	ND	17%

Task 4 Uses and maintains tools and equipment.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	32	25	20	25	50	35	ND	15	50	NV	ND	ND	ND	32%

BLOCK B SUBSTRATE PREPARATION

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	National Average
%	12	14	10	15	20	15	ND	20	15	NV	ND	ND	ND	15%

Task 5 Removes existing finishes.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	22	15	20	25	25	15	ND	20	10	NV	ND	ND	ND	19%

Task 6 Determines suitability of substrate.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	33	35	30	30	15	25	ND	40	30	NV	ND	ND	ND	30%

Task 7 Prepares surface.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	45	50	50	45	60	60	ND	40	60	NV	ND	ND	ND	51%

BLOCK C LAYOUTS

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	National Average
%	22	14	25	25	10	10	ND	30	20	NV	ND	ND	ND	20%

Task 8 Squares area.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	40	50	45	50	40	30	ND	30	40	NV	ND	ND	ND	40%

Task 9 Lays out grid lines.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	40	30	45	40	30	20	ND	40	40	NV	ND	ND	ND	36%

Task 10 Installs divider strips.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	20	20	10	10	30	50	ND	30	20	NV	ND	ND	ND	24%

BLOCK D MATERIAL PREPARATION

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	National Average
%	18	14	10	15	15	15	ND	10	15	NV	ND	ND	ND	14%

Task 11 Inspects materials.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	23	25	10	15	15	30	ND	10	10	NV	ND	ND	ND	17%

Task 12 Cuts and pre-finishes material.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	23	35	50	25	40	30	ND	30	40	NV	ND	ND	ND	34%

Task 13 Mixes setting materials.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	27	30	30	30	15	30	ND	30	20	NV	ND	ND	ND	27%

Task 14 Mixes terrazzo.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	27	10	10	30	30	10	ND	30	30	NV	ND	ND	ND	22%

BLOCK E MATERIAL SETTING

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	National Average
%	18	14	30	15	40	35	ND	20	30	NV	ND	ND	ND	25%

Task 15 Installs tiles.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	42	65	70	30	40	35	ND	35	40	NV	ND	ND	ND	45%

Task 16 Installs stone slabs.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	36	25	20	35	30	35	ND	35	40	NV	ND	ND	ND	32%

Task 17 Pours terrazzo mixture.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	22	10	10	35	30	30	ND	30	20	NV	ND	ND	ND	23%

BLOCK F FINISHING

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	National Average
%	15	14	15	10	10	15	ND	10	10	NV	ND	ND	ND	12%

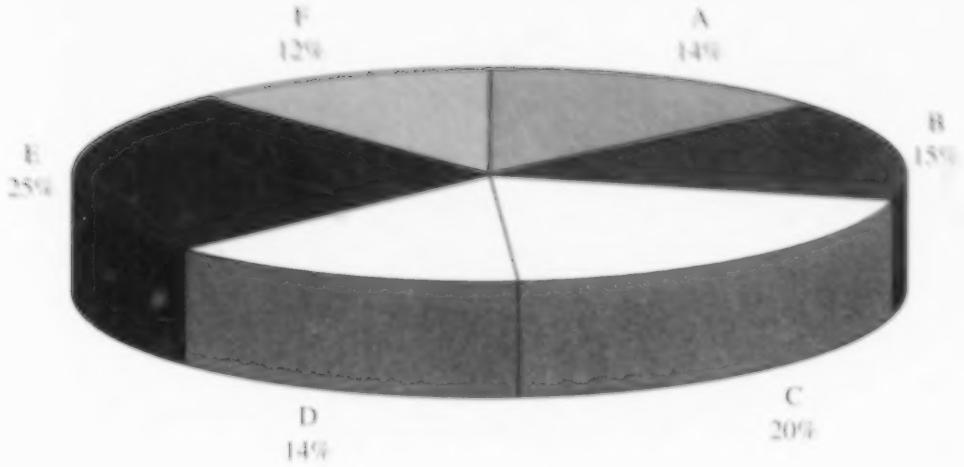
Task 18 Finishes installed product.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	50	90	90	50	60	50	ND	50	50	NV	ND	ND	ND	61%

Task 19 Finishes terrazzo.

	NL	NS	PE	NB	QC	ON	MB	SK	AB	BC	NT	YK	NU	
%	50	10	10	50	40	50	ND	50	50	NV	ND	ND	ND	39%

PIE CHART*
Tilesetter



TITLES OF BLOCKS

Block A	Occupational Skills	Block D	Material Preparation
Block B	Substrate Preparation	Block E	Material Setting
Block C	Layouts	Block F	Finishing

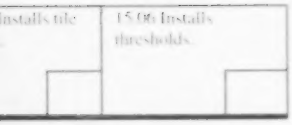
* The average percentage of the total number of questions on an interprovincial examination, assigned to assess each block of the analysis, as derived from the collective input from workers within the occupation from all areas of Canada. Interprovincial examinations typically have from one hundred up to one hundred and fifty multiple-choice questions on each examination.

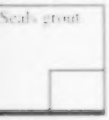
	BLOCKS	TASKS	SUB-TASKS				
A	Occupational Skills	1. Interprets occupational documentation.	1.01 Interprets drawings and specifications.	1.02 Interprets codes, standards and regulations.	1.03 Interprets material documentation.		
		2. Organizes work.	2.01 Determines suitability of worksite.	2.02 Prepares worksite.	2.03 Estimates materials and supplies needed on-site.	2.04 Organizes materials and supplies.	2.0 ma ad
		3. Communicates in the workplace.	3.01 Communicates with other disciplines and co-workers.	3.02 Communicates with clients.	3.03 Communicates with apprentices/helpers.		
		4. Uses and maintains tools and equipment.	4.01 Uses hand tools.	4.02 Uses power tools.	4.03 Uses scaffolding and access equipment.	4.04 Uses rigging, hoisting and lifting equipment.	4.0 pro eq
B	Substrate Preparation	5. Removes existing finishes.	5.01 Removes floor covering.	5.02 Removes wall coverings.	5.03 Removes non-compatible materials.	5.04 Cleans surfaces.	
		6. Determines suitability of substrate.	6.01 Determines substrate integrity.	6.02 Determines drainage requirements.	6.03 Determines surface level and plumb.		
		7. Prepares surface.	7.01 Repairs substrates.	7.02 Installs membranes.	7.03 Installs resilient underlay.	7.04 Installs metal lath.	7.0 un
C	Layout	8. Squares area.	8.01 Determines site measurements.	8.02 Determines starting point.	8.03 Determines rise and run of stairs.		
		9. Lays out grid lines.	9.01 Determines tile layout for best visual effect.	9.02 Establishes pattern locations.			
		10. Installs divider strips.	10.01 Installs base strips.	10.02 Installs floor strips.			

SUB-TASKS →

	1.03 Interprets material documentation.						
	2.03 Estimates materials and supplies needed on-site.	2.04 Organizes materials and supplies.	2.05 Develops, maintains and adapts schedule.				
	3.03 Communicates with apprentices/helpers.						
	4.03 Uses scaffolding and access equipment.	4.04 Uses rigging, hoisting and lifting equipment.	4.05 Uses personal protection equipment.	4.06 Uses level measuring equipment.			
	5.03 Removes non-compatible materials.	5.04 Cleans surfaces.					
	6.03 Determines surface level and plumb.						
	7.03 Installs reinforcement mesh.	7.04 Installs mortar beds.	7.05 Installs underlayments.	7.06 Purges surfaces.	7.07 Installs sound attenuation products.	7.08 Places in-floor heating.	
	8.03 Determines rise and run of stairs.						

	BLOCKS	TASKS	SUB-TASKS					
D	**Material Preparation**	**11.** Inspects materials.	11.01 Confirms tile consistencies.	11.02 Confirms natural stone consistencies.	11.03 Checks for damage.			
		12. Cuts and pre-finishes material.	12.01 Cuts tile.	12.02 Prepares stone slabs for cutting.	12.03 Cuts and shapes stone slabs.	12.04 Polishes stone slabs.		
		13. Mixes setting materials.	13.01 Mixes epoxies.	13.02 Mixes thinset mortars.	13.03 Mixes mortar beds.	13.04 Mixes grouting materials.		
		14. Mixes terrazzo.	14.01 Mixes terrazzo aggregate.	14.02 Mixes Portland cement terrazzo.	14.03 Mixes epoxy terrazzo.			
E	**Material Setting**	**15.** Installs tiles.	15.01 Applies setting material.	15.02 Sets tiles.	15.03 Installs ceramic accessories.	15.04 Installs expansion and control joints.	15.05 Installs tile edging.	15.06 Installs thresholds.
		16. Installs stone slabs.	16.01 Installs anchors.	16.02 Applies stone slab setting material.	16.03 Mounts stone slabs.	16.04 Sets stone slabs.		
		17. Pours terrazzo mixture.	17.01 Applies bond coat.	17.02 Trowels in terrazzo mixture.	17.03 Compacts terrazzo.	17.04 Works surface.		
F	**Finishing**	**18.** Finishes installed product.	18.01 Floats grout.	18.02 Washes grout.	18.03 Polishes tiles.	18.04 Caulks joints.	18.05 Seals grout.	
		19. Finishes terrazzo.	19.01 Grinds terrazzo.	19.02 Grouts terrazzo.	19.03 Seals terrazzo.			


Installs tile
15.06 Installs thresholds.


Seals grout